



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Coastal Protection and Restoration Division
c/o EPA Region X (ECL-117)
1200 Sixth Avenue
Seattle, Washington 98101

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Dear Chip and Eric:

This letter provides **NOAA's comments on EPA's first batch of proposed TRVs (for cadmium, arsenic, and antimony)** distributed to the government team on July 21, 2008. The NOAA team involved in developing this response to EPA includes Nancy Beckvar and Rob Neely of the NOAA Office of Response and Restoration, James Meador of the NOAA Northwest Fisheries Science Center, and Bob Dexter of Ridolfi, Inc. NOAA appreciates EPA's efforts in developing TRVs for fish and invertebrate tissue at the site. We recognize that this is a challenging and complex endeavor. Comments provided herein are of a general nature and more specifically focused on proposed TRVs for cadmium.

In terms of general comments, it is unclear to NOAA how the Round 3 tissue data will be considered in the development of TRVs for fish and invertebrate tissues using the SSD methodology. It is our understanding that TRVs currently under development are based on screens on data up to and including round 2, but that screens on data including those collected in round 3 have not yet been conducted. NOAA would like to have a better understanding of EPA's plans for how the Round 3 data will be considered as they pertain to TRVs.

NOAA has not conducted a detailed review of the TRVs (and their derivation) for arsenic and antimony. Dr. James Meador of the NOAA Northwest Fisheries Science Center has conducted a more rigorous review for cadmium. Our comments follow.

Antimony

NOAA has no comments on these TRVs at this point in time.



Arsenic

The analysis used to derive TRVs for this substance does not distinguish between the different forms of arsenic. Because the toxicities of these different forms can and do vary, this omission should be discussed and justified.

Cadmium

The first paragraph should include more information. For example, why was cadmium identified as a COPC for invertebrates only? Please include additional details or provide a reference for the statement “consistent with the methods being used to derive tissue TRVs for Portland Harbor”. (Note: the reviewer has not seen the final document describing the methods for TRV derivation.)

Please define all terms such as ED95, LOED, etc.

Please provide an explanation for the exclusion of a cadmium TRV for fish.

EPA’s analysis excluded some studies, yet the exclusion of these listed studies is generally poorly supported. Take Bartsch et al. (1999) as an example. This paper was excluded because the highest dose did not produce a significant response and the behavioral endpoint was in question. This concerns us because there are many reasons why one might see a lack of response for a high dose. These include statistical artifacts, non-random selection of test organisms, tank effects, analytical artifacts, unknown biological factors, dose-dependent changes in the mode of toxic action, and/or demonic intrusions. Furthermore, it would be very difficult to justify elimination of a study because of a hormetic response or lack of significant response for one or more of the doses. There is no rule that says dose-response relationships have to be linear. Eliminating this study is the same as denying the validity of the observed low dose effects.

At the top of page 2, it is stated that “the bioturbation endpoint is specific to burrowing organisms and is questionably linked to direct effects on survival, growth, and reproduction.” This is a qualitative assessment that does not appear to be supported by science. Why is it questionably linked? This appears to be a significant and important alteration in behavior. In general, any time an organism’s behavior differs significantly from the norm the probability that it will become prey increases dramatically. Such a result would be *directly* linked to the “relevant” endpoints of survival, growth, and reproduction.

Comments on specific studies

Study 1. Sofyan et al. (2007). Please provide detailed justification for the statement: “The basis for the ED95 of 0.052 mg/kg identified in ERED is unclear, and so was not selected.” At the time of review, this paper was not on the FTP site and therefore unavailable for inspection.

Study 2. Radenac et al. (2001). The statement “Accordingly, although statistically significant, the LOER of 0.156 mg/kg wet wt may be of limited biological significance” should be supported with a detailed justification.

Study 4. Regarding the statement, “After considering the tissue TRV development guidelines developed for Portland Harbor, it was determined that this study should not be included in TRV development because the behavioral response was not consistent when tested during different times of the day,” please provide details on the guidelines and how, specifically, they address temporal factors. Also, please explain how this temporal variability in response leads to an exclusion of this study. Finally, some rationale should be provided to support the exclusion of the “drift” endpoint.

Also please note that the NOAA reviewer calculated a 5th percentile with the algorithms provided in Gilbert (1987) for lognormal distributions and got a value of 0.27 ug/g, which is lower than the proposed 0.36 ug/g (see Gilbert RO. 1987. Statistical Methods for Environmental Pollution Monitoring).

NOAA appreciates the opportunity to provide these comments. Please let us know if you have any questions or require further clarification on any of the information we have provided via this comment letter.

Sincerely,

Robert Neely
NOAA Regional Resources Coordinator

cc: Mary Baker, NOAA / NOS / ARD (by email)
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